

WHAT IS CLAIMED IS:

1. A data driver for driving multiple data lines on an LCD panel according to multiple channels of pixel data, the data driver comprising:

5 a digital buffer for receiving and storing the pixel data at several times and selectively outputting a channel of the pixel data at a time;

a DAC (digital-to-analog converter) for receiving the pixel data output from the digital buffer at several times, converting the pixel data into multiple channels of analog pixel data and outputting the analog pixel data at several times;

10 an analog buffer for receiving the analog pixel data output from the DAC at several times and for outputting the analog pixel data at a time; and

an output buffer for receiving the analog pixel data output from the analog buffer so as to drive the data lines.

2. The data driver according to claim 1, further comprising a shift register
15 for commanding the digital buffer to receive the pixel data.

3. The data driver according to claim 1, wherein the digital buffer includes a first line buffer and a second line buffer; the first line buffer receives

and stores the pixel data at several times; when the first line buffer finishes its receiving operations, the first line buffer parallelly transfers all the pixel data stored therein to the second line buffer; and the second line buffer outputs a channel of the pixel data to the DAC at a time.

4. The data driver according to claim 3, further comprising a line buffer control circuit, and the second line buffer comprising multiple line buffer units, wherein the line buffer control circuit selects one of the line buffer units at a time, and the second line buffer outputs the pixel data stored in the selected line buffer unit.
5. The data driver according to claim 1, wherein the analog buffer comprises multiple analog buffer units and the analog buffer units receive the analog pixel data output from the DAC at several times.
6. The data driver according to claim 5, further comprising an analog buffer control circuit for commanding the analog buffer to receive the analog pixel data output from the DAC and to store the analog pixel data in the analog buffer units at several times, and for commanding the analog buffer to parallelly output the analog pixel data to the output buffer after the analog buffer finishes its receiving operations.

7. A data driver for driving multiple data lines on an LCD panel according to multiple channels of pixel data, the data driver comprising:

a digital buffer for receiving and storing the pixel data at several times and selectively outputting N channels of the pixel data at a time, wherein N is
5 a positive integer greater than 1 and smaller than the number of the data lines;

N sets of DACs (digital-to-analog converters) for receiving the pixel data output from the digital buffer, simultaneously converting N channels of the pixel data into N channel of analog pixel data, and outputting the analog
10 pixel data;

an analog buffer for receiving the analog pixel data output from the DACs at several times and outputting the analog pixel data at a time; and

an output buffer for receiving the analog pixel data output from the analog buffer so as to drive the data lines.

15 8. The data driver according to claim 7, further comprising a shift register for commanding the digital buffer to receive the pixel data.

9. The data driver according to claim 8, wherein the digital buffer

comprises a first line buffer and a second line buffer; the first line buffer receives and stores the pixel data at several times; when the first line buffer finishes its receiving operations, the first line buffer parallelly transfers all the pixel data stored therein to the second line buffer; and
5 the second line buffer selectively outputs N channels of the pixel data to the DACs at a time.

10. The data driver according to claim 9, further comprising a line buffer control circuit, and the second line buffer comprising multiple line buffer units, wherein the line buffer control circuit selects N line buffer units
10 from the line buffer units at a time, and the second line buffer outputs the pixel data stored in the selected line buffer units.

11. The data driver according to claim 7, wherein the analog buffer comprises multiple analog buffer units, which receive the digital pixel data output from the DACs at several times.

15 12. The data driver according to claim 11, further comprising an analog buffer control circuit for commanding the analog buffer to receive the pixel data output from the DACs and to store the pixel data in the analog buffer units at several times, and for commanding the analog buffer to parallelly output the pixel data to the output buffer after the

analog buffer finishes its receiving operations.

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